

REMARKS

Claims 27-36 and 38-41 are pending in this application. Claim 27 is the sole independent claim. By this Amendment, claims 16, 17, 21-26 and 37 are cancelled without prejudice or disclaimer. Claims 27, 35 and 36 are amended and claims 38-41 are added. No new matter is added.

Rejections under 35 U.S.C. §102 - *Frasier*

Claims 16-17 and 21-37 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,810,552 (“Frasier”). As claims 16, 17, 21-26 and 37 are cancelled, the rejection of those claims is moot. The rejection of claims 27-36 is respectfully traversed.

Frasier fails to disclose each and every feature recited in the rejected claims, as amended. For example, Frasier fails to disclose, a cast workpiece, comprising a wall including a plurality of passages, the plurality of passages being in the form of an interconnecting three-dimensional grid randomly distributed in the wall.

Frasier relates to thin hollow wall structures that have high thermal conductive members therebetween (col. 1, lines 17-22). In Frasier, a multi-wall structure (Fig. 8) includes a passageway interposed between a pair of walls, and a high thermal conductivity member 30’ extends into the passageway and thermally couples the walls to increase heat transfer between the walls of the structure (Abstract of Frasier).

To create the multi-wall structure shown in Fig. 8, Frasier discloses that each thin wall structure 32 (Figs. 5, 6) may be cast in a ceramic shell 10 (Fig.4) having a mold 11. A laser is used to form channels and pedestals in the thin wall structure 32 to increase surface area for better heat exchange (col. 5, line 62-col. 6, line 48). A plurality of thermal conductivity rods 30’

are cast into the thin wall structure 32 by anchoring one end of the rod 30' into a hole drilled in a main ceramic core 28. Other rods 30'', 46, 48, 50 are also cast into the thin wall structure 32 and similarly anchored in pockets 38 in the main ceramic core 28, the casting shell 44, or in the thin wall structure 32 (see Fig. 5; col. 6, line 49-col. 8, line 24). The other rods, 30', 46, 48 and 50 are removed after casting to form air passages, but the high thermal conductivity rods 30' remain in the multi-wall structure.

It is alleged in the Office Action that the multi-wall structure shown in Fig. 8 corresponds to the claimed three-dimensional grid structure. However, the multi-wall structure of Fig. 8 does not have a plurality of passages being in the form of an interconnecting three-dimensional grid randomly distributed in the wall. Rather, as clearly described in Frasier, the passages formed upon removal of the rods and cores are not randomly distributed as each of the rods and cores is specifically placed and fixed prior to casting. For example, the rods are inserted into the pockets or holes drilled specifically to receive the rods. The casting shells 44 and the main ceramic core 28 are also in a predetermined, fixed position relative to the rods. In other words, because the position of each rod and core, relative to each other, is fixed, the passages formed upon removal of the casting parts and rods are not randomly distributed in the wall.

Moreover, it does not appear that the passages in the multi-wall structure shown in Fig. 8 are interconnected. Rather, it appears that the rods 30' may pass through one or more passages but the passages are not interconnected.

Because Frasier fails to disclose each and every feature recited in the rejected claims, Applicants respectfully request that the rejection of the claims be withdrawn.

New Claims

Frazier also fails to disclose each and every feature recited in new claims 38-41. For example, Frazier fails to disclose a set of turbine blades, comprising a plurality of cast workpieces as claimed in claim 27, or wherein the plurality of passages in each turbine blade includes a different three-dimensional grid. Frazier fails to disclose or suggest, a device, comprising the internally cooled turbine blade as claimed in claim 29, or the internally cooled turbine vane as claimed in claim 30.

CONCLUSION

In view of the above remarks and amendments, Applicants respectfully submit that each of the rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

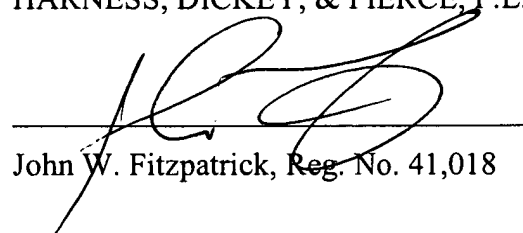
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Fitzpatrick at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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By


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